

attempting to produce the same effect and at the most expeditious and economical rate by means of a pressure from without; indeed the vacuum and plenum systems appear destined ere long to be worthy rivals for supremacy, when steam shall be known only as a thing that was, or at most as an auxiliary.

Mr. Nasmyth, in a letter to the editor of the *Mining Journal*, propounds a novel method of procuring a vacuum by the direct action of low pressure steam. He says "the object desired to be attained is, to remove the air entirely from the interior of certain large chambers, so that they may, as it were, become vast magazines of vacuum. The ordinary mode of doing this is to pump out the air by air-pumps, which receive their power from a vacuum, created above or below the piston of a steam-engine. The principle I set out upon is simply this—why employ one vacuum to create another, when we could, by the primary process, attain the desired object, without the intervention of any secondary action, or machinery, whatsoever? Now, let us examine how this is best to be done. One cubic foot of water, converted into low-pressure steam, will, in round numbers, yield 1,700 cubic feet of steam, which will be capable (on being introduced at the upper end of an upright air-tight vessel) of displacing, or forcing out at an aperture below, 1,700 cubic feet of air; if we now stop the further influx of steam, and close the aperture below, and either permit the steam to condense, *per se*, or perform that duty by a separate condenser, we shall have for our 1,700 feet of steam, 1,700 feet of very nearly perfect vacuum (supposing, of course, that our vessel was exactly 1,700 cubic feet capacity). Now, if we suppose a communication opened between this magazine of 1,700 cubic feet of vacuum, and an atmospheric railway pipe of similar capacity, we shall abstract one-half of its contents of air, and at once reduce it to the state of a vacuum of 7½ lbs. to the square inch, or thereabouts. Here, then, we have done some work so far, with our first 1,700 cubic feet of steam. It will be evident that the remaining vacuum in the exhausting chamber, and that in the pipe it has partially exhausted, will be similar in extent—namely, each a half perfect vacuum. Now, let us suppose that we have, during the performance of this operation, discharged the air from a second chamber of like capacity to the first—viz., 1,700 cubic feet, and that that vessel is just filled with steam on a balance with the atmosphere: if before opening the communication between our condenser and this steam-filled vessel, we first open a communication between it and our first vessel, which, as before described, is in the state of half vacuum, it is evident that this first vessel will abstract from the steam-filled vessel a very large portion of steam, until the two are then on a balance; on this simple system of mutual transfer we not only employ the first vessel to act on the second, as a preliminary condenser, but also, as it were, use the steam of the second vessel in great part *over*, inasmuch, as this transferred steam will so far act the same as fresh steam from the boiler in satisfying the wants of the first, or "used up" chamber: this being the case, the second vessel has its vacuum rendered complete, by being brought into communication with the condenser, while the first vessel has its complement of steam made up direct from the boiler; which steam, flowing in at the upper end, performs the air-discharging office to perfection."

NEW CHURCHES.—On Saturday, the 25th annual report of the Commissioners for Building New Churches (which was presented to Parliament) was printed. It extends to fifteen pages. It appears that 313 churches have been now completed, and provision has therein been made for 402,239 persons, including 225,217 seats appropriated to the use of the poor. There are 36 churches now in the course of building, to the erection of which the commissioners have contributed pecuniary aid from the funds placed at their disposal. The commissioners state that plans for 23 churches have been approved, to be built at the places mentioned in the report. Applications have been made for further church accommodation to the commissioners from 74 places, which are detailed in the annual statement.

BARTON HOUSE, IN THE ISLE OF WIGHT.

Her Majesty the Queen having purchased the site of the old convent or oratory of Barton in the Isle of Wight, for the erection of a marine residence, the following notices of its history, from a paper read at the late Winchester meeting, by Mr. John Alfred Barton, of Barton village, may not be uninteresting to our readers.

In archaeological remains, and more particularly those of an early date, the Isle of Wight has been represented by some writers to be very barren, which, if true, may have arisen from various causes; and amongst them, doubtless, the sweeping devastations, which have so frequently passed over it in by-gone times, are to be considered as primary ones. Yet there is much that will repay the antiquary for a patient investigation,—much that may yet be brought to light, hidden beneath the soil; and amongst those relics which time has spared, not the least interesting portion, is that which comprises the old manorial residences of ancient families, many of which still remain in nearly their original state, and being generally in secluded situations, have almost entirely escaped the notice of the tourist, or the antiquary. A considerable list of these might be given, but I shall now limit my remarks to the ancient oratory of Barton, or Barton, which has survived to the present day, and, till within a very brief period, presented a curious example of the domestic arrangements of a different state of society from the present. This fine old place is, at this time, an object of peculiar interest, from its having so recently become the property of her most gracious Majesty, and from the demolition (with small exceptions) of the venerable walls, which for nearly six centuries have withstood the assaults of time and the injuries of man. It is true that another building is in progress of erection, and that taste and genius preside over the work; but it is difficult to forget that, with its destruction, the associations attached to the time-hallowed and hoary dwelling of a distant age are passed away; and, however we may admire the new creation, still we must regret the old and the familiar. Very fortunately, during the last year, I had taken a series of sketches of the house as it then appeared, and as it remained till within these few weeks.

I shall briefly describe the old house as it lately stood, and then proceed to give such account of its uses and of its history as I have been enabled to collect from the scanty sources of information available. It is much to be regretted that there are so meagre and unsatisfactory; but the truth is, that the religious house of Barton having been dissolved long before the Reformation, it has escaped the attention of our writers on ecclesiastical antiquities altogether, and with the exception of a few scattered notices of it in old documents, some traditional matters, and the preservation of the building to illustrate them, its history is involved in obscurity. Barton Court House was an extensive mass of buildings erected at various periods, and having that general character which has been denominated the Elizabethan style; but it is little to be doubted that it belonged to a period somewhat anterior, and that it offered a specimen of the domestic architecture of Henry VI.'s age. The reasons for the adoption of this opinion are, that the houses of Elizabeth's time are usually more ornamented, whereas the prevailing characteristic of Barton was a severe simplicity; and also, it is well known that when the oratory was surrendered in the reign of Henry VI. great alterations were made in the building; and to that era, therefore, the late dwelling-house was to be attributed.

There were two principal fronts, the eastern, in which was situated the porch entrance, and the southern; but from whatever quarter it was viewed, a picturesque and massive group of moss-grown walls, towering and elegant chimneys, and ornamented gables, the whole embosomed in fine old trees, formed a scene of the greatest beauty and cheerfulness combined. The eastern front comprised wings, with a central porch of two stories, and was very beautifully varied in its combinations, and exhibited a rich and interesting assemblage of details. The southern front was of much greater extent, and of greater simplicity in its outline, yet exceedingly impressive and noble, while, from its more weather-stained hue, it

had an appearance of the most venerable kind. These two fronts are the only portions of the ancient building which will be preserved, and it is creditable to the taste of those entrusted with the restorations, that they should have spared these antique remains, although it might have been wished the chimneys could have been also exempted from destruction, as their elaborate and elegant design and massive grouping well entitled them to this distinction.

During the progress of demolition, a wall of very solid construction, the sole remainder of the original building, was brought to light; and it having been stated in the public papers that it was interesting with respect to its architecture, I made a visit of inspection to Barton, but was, unluckily, too late for the swift progress of destruction—a considerable part having been then demolished, and with it an arched door-way, which had been built up, and which the clerk of the works informed me was a plain chambered one, possessing little of architectural merit. He also stated that the discoveries, concerning which so much had been written, were of a much less important character than had been represented, the arch being precisely similar to that at the eastern entrance, and the only point of interest visible. That portion of the wall which remained, certainly presented no features to distinguish it from any other, with the exception of its antiquity. It was a plain but massive piece of masonry. I was informed by the same gentleman, also, that a few coins had been discovered during the demolition of the house, which had been sent to his royal highness Prince Albert; but he could give me no information as to their age or character: they are of silver.

To describe the interior distribution of a dwelling which has ceased to be, may seem unnecessary, but there were some peculiarities about that of Barton which may entitle it to notice; and although it no longer retained its original monastic character, its details were of sufficiently remote period to excite curiosity, and to gratify it. One apartment, about 12 feet square, bore the title of the chapel, and was very singular, having been apparently fitted up as a secret chapel for the performance of the mass, subsequent to the Reformation, and within the memory of living individuals, retaining an altar, crucifix, and other Catholic accessories. The hall was also a spacious and noble room, though subsequently divided into two, and had its ample fire-place at either end, and its hospitable and antique table, formed from one immense plank of oak.

The oratory of Barton, or Hynton, as it is originally written, was founded about the close of Henry the Third's reign, or the commencement of that of Edward the First, by John de Insula (a member of the ancient family of that name seated in the Isle of Wight) the rector of Shallock, and Thomas de Winton, rector of Godshill, and by them dedicated to the Holy Trinity, and endowed with certain lands and manorial rights, situated in the parish of Whippingham and elsewhere, in the Isle of Wight.

By the Winchester register we are informed that in A.D. 1290, the prior being then a captive in France, and the buildings of the oratory in a state of dilapidation, instructions were issued by the bishop that the house should be repaired, and other necessary things be done.

A.D. 1439, about 150 years after its institution, and in the eighteenth year of Henry VI. the oratory of Barton or Barton, was surrendered into the hands of the bishop of Winchester by Walter Trenggoff, the arch-priest, who afterwards became Archbishop of Cornwall. This was undoubtedly through the influence of William Wainfleet, the bishop; and by the same influence the oratory with its lands were granted to the college of St. Mary, at Winchester, founded by William of Wykeham, and with this foundation it has remained till the recent transfer to our most gracious queen.

DEVONPORT DOCKYARD.—For many years past, the Government has contemplated the enlargement of Devonport dockyard, but various interests have hitherto successfully prevented its execution. The additional powers recently given by parliament to the Admiralty having placed that department in a better position, very active arrangements are now being made to carry into effect as rapidly as possible the original design.